Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1.   (currently amended) A virtualization system for controlling data transfer between a host system and a plurality of storage devices, each of the storage devices having a disk controller, a plurality of disk drives, and at least one logical volume relating to a portion of the disk drives, the virtualization system comprising:

a plurality of first ports coupled to the plurality of storage devices;

a second port coupled to the host system;

a processor; and

a memory configured to store mapping information which [[correlates]] relates first volume identification information used by the host system to access a virtual [[logical]] volume in the virtualization system, [with] to second volume identification information for identifying a first logical volume corresponding to the virtual logical volume and being in a first storage device of the storage devices, the mapping information being used by the processor to transfer data sent from the host system to the first logical volume; [[and]]

wherein the virtualization system receives data, which are sent from the host system and are targeted to the first volume identification information, during a data transfer phase that data stored in the first logical volume are transferred to a second logical volume in a second storage device of the storage devices, and the data targeted to the first volume identification information is written to the second logical volume; and

wherein; [[based on]] when the data transfer phase ~~data stored in the first logical volume that are transferred to a second logical volume in a second storage device of the storage devices~~ is completed, the memory is configured to store [[new]] changed mapping information which [[correlates]] relates the first volume identification information [[with]] to third volume identification information for identifying the second logical volume.

2.   (currently amended) The virtualization system as recited in Claim 1, wherein, upon receipt of data [[appended]] targeted to the first volume identification information, the processor controls data transfer of the data [[appended]] targeted to the first

volume identification information to the first logical volume based on the [[correlation]] relation of volume identification information in the mapping information.

3.   (currently amended) The virtualization system as recited in Claim 1, wherein the second volume identification information includes a port identification of the first storage device [[containing]] related to the first logical volume and a Logical Unit Number (LUN) identifying the first logical volume.

4.   (currently amended) The virtualization system as recited in Claim 1, wherein the second volume identification information includes [[a personal]] an identification number of the first logical volume contained in the first storage device.

5.   (currently amended) The virtualization system as recited in Claim 1,
        wherein the memory is configured to store routing information which indicates a relationship of connection among the virtualization system, the storage devices, and the host system;
        wherein the processor, upon receipt of data from the host system or any of the storage devices, decides whether to relate identification information [[appended to]] of the received data to the volume identification information stored in the mapping information or not, and if the identification information [[appended to]] of the received data relates to the volume identification information, sends the received data to the host system or any of the storage devices according to the routing information.

6.   (canceled)

7.   (currently amended) The virtualization system as recited in Claim 1,
        wherein, when or after transfer of data stored in the first logical volume to the second logical volume is completed, if a request for access targeted to the first [[logical]] volume identification information is received from the host system, the processor sends a request corresponding to the request [[for access]] to the second storage device having the second logical volume.

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8.   (previously presented) The virtualization system as recited in Claim 1, wherein the processor is configured to be sent the mapping information from another computer system.

9.   (previously presented) The virtualization system as recited in Claim 1, further comprising a third port for connection with a managing unit which is configured to control the virtualization system, wherein the processor is configured to monitor a state of connection with the storage devices connected through the plurality of first ports, and if a change in the connection state is detected, to notify the managing unit of the change in the connection state.

10.   (currently amended) A virtualization system coupled to at least one host system and a plurality of storage devices, said storage devices each having a plurality of disk drives and at least one logical volume related to a portion of the disk drive, the virtualization system comprising:

a plurality of first ports coupled to the storage devices;

at least one second port coupled to the host system; and

a first processor configured to convert [[data with the]] first volume identification information, which is [[added]] <u>related</u> to data received from the host system and is used to identify a virtual [[logical]] volume of the virtualization system, into [[the]] second volume identification information for identifying a first logical volume in a first storage device of the storage devices according to relationship information between the first volume identification information and the second volume identification information and to send data [[added]] <u>related to</u> the second volume identification information to the first storage device;

<u>wherein the virtualization system receives data, which is sent from the host system and is related to the first volume identification information, during a data transfer phase that data stored in the first logical volume are transferred to a second logical volume in a second storage device of the storage devices, and the received data is written to the second logical volume;</u>

<u>wherein, if the data transfer phase is completed</u> ~~after data stored in the first logical volume has been transferred to a second logical volume of a second storage device of~~

~~the storage devices,~~ <u>the relationship information is changed to new relationship information</u> <u>between the first volume identification information and third volume identification</u> <u>information for identifying the second logical volume;</u>

<u>wherein</u> the first processor is configured to convert the first volume identification information, which is [[added]] <u>related</u> to another data received from the host system, into <u>the</u> third volume identification information ~~for identifying the second logical~~ ~~volume~~ according to <u>the</u> new relationship information ~~between the first volume identification~~ ~~information and the third volume identification information~~ and to send data [[added]] <u>related</u> <u>to</u> the third volume identification information to the second storage device.

11.   (currently amended) The virtualization system as recited in Claim 10, wherein the second volume identification information includes a port identification of the first storage device ~~containing first logical volume~~ and a Logical Unite Number (LUN) identifying the first logical volume.

12.   (currently amended) The virtualization system as recited in Claim 10, further comprising:

a second processor which controls the process of transferring data stored in a third logical volume corresponding to another virtual [[logical]] volume to a fourth logical volume, and

wherein <u>if the process of transferring data is completed,</u> ~~the second processor~~ ~~correlates~~ fourth volume identification information, which is used to identify the [[third logical]] <u>another virtual</u> volume, [[with]] <u>is related to</u> the fifth volume identification information for identifying the fourth logical volume ~~according to relationship information~~ ~~between the fourth volume identification information and the fifth volume identification~~ ~~information.~~

13.   (canceled)

14.   (previously presented) The virtualization system as recited in Claim 10, further comprising at least one third port coupled to a managing unit, wherein the managing unit is configured to send the relationship information to the virtualization system.

15.   (canceled)

16.   (currently amended) A method of controlling data transfer in a virtualization system coupled to a host system and a plurality of storage devices, the host system [[which uses]] using first volume identification information to access a virtual [[logical]] volume in the virtualization system, and [[a plurality of]] each of the storage devices[[, which each]] has a plurality of disk drives and a logical volume related to a portion of the disk drives, the method comprising:

[[correlating]] relating the first volume identification information for identifying the virtual logical volume [[with]] to second volume identification information for identifying a first logical volume in a first storage device of the storage devices;

~~receiving data stored in a first logical volume;~~

transferring [[the]] data stored in the first logical volume to a second logical volume in a second storage device of the [[plurality of]] storage devices;

receiving data of a data input request sent from the host system by using the first volume identification information during the transferring step;

writing the data of the data input request to the second logical volume; and

based upon transferring [[the]] all data stored in the first logical volume to the second logical volume, [[correlating]] relating the first volume identification information [[with]] to third volume identification information for identifying the second logical volume.

17.   (currently amended) The method of controlling data transfer as recited in Claim 16, further comprising:

registering the first volume identification information and the third volume identification information in mapping information in a memory;

receiving a data input/output request, sent from the host system, and targeted to the virtual [[logical]] volume;

converting the first volume identification information [[included in]] related to the data input/output request into the third volume identification information; and

transferring the converted data input/output request to the second logical volume after [[correlating]] registering the first volume identification information [[with]] and the third volume identification information.

18.   (currently amended) The method of controlling data transfer as recited in Claim 16, further comprising:

receiving an [[access]] input/output request, which is sent from the host system and is targeted to the virtual [[logical]] volume; and

based upon transferring the all data stored in the first logical volume to the second logical volume, sending the [[access]] input/output request to the second [[logical volume]] storage device after [[correlating]] relating the first volume identification information [[with]] to the third volume identification information.

19.   (currently amended) A method of [[connecting]] controlling data transfer of a virtualization system, which couples to a host system, [[and]] a first storage device and a second storage device and has a virtual [[logical]] volume [[corresponding]] related to a first logical volume related to a portion of a plurality of disk drives in the first storage device, the method comprising:

transferring data sent from the host system to the first logical volume by changing first volume identification information, which is [[appended]] related to the data sent from the host system and is used to identify the virtual [[logical]] volume, into second volume identification information for identifying the first logical volume;

connecting the virtualization system with the second storage device through a path;

transferring substantially all data from the first logical volume to a second logical volume related to a portion of a plurality of disk drives in the second storage device;

writing data sent from the host system during the data transfer from the first logical volume to the second logical volume, to the second logical volume; and

setting, on the virtualization system, relationship between the first volume identification information and third volume identification information for identifying [[a]] the second logical volume, if the data transfer from the first logical volume to the second logical volume is completed related to a portion of a plurality of disk drives in the second storage device, and virtual port identification information for the virtualization controller, which are used to access the second logical volume by the host system; and

transferring [[another]] data sent from the host system to the second logical volume by changing the first volume identification information, which is [[appended]] related

to the [[another]] data sent from the host system, into <u>the</u> third volume identification information after setting the <u>relationship</u> ~~first volume identification information and third volume identification information~~.

20.   (currently amended) The method as recited in Claim 19, [[further comprising:]]

<u>wherein</u> ~~sending, from the host system to the virtualization system, an access request to access the~~ virtual [[logical]] volume [[using]] <u>is related to</u> virtual port identification information ~~of the virtualization system; and~~

~~upon receipt of the access request from the host system, accessing the storage area via the fourth path by second logical volume the virtualization system.~~

21.   (currently amended) The method as recited in Claim 19, wherein [[the access request comprises]] data [[with]] <u>sent from the host system is related to</u> the first volume identification information and virtual port identification information of the virtualization system, and wherein transferring <u>the data sent from the host system</u> to the second logical volume comprises sending [[the]] data [[associated with]] <u>related to</u> the third volume identification information and [[the virtual]] port identification information <u>of the second storage device</u> from the virtualization system to the second logical volume [[via the path]].

22.   (currently amended) The method as recited in Claim 19, wherein the first volume identification information ~~comprises personal information of the virtual logical volume~~ <u>relates to virtual port identification information of the virtualization system</u>.

23.   (currently amended) The method as recited in Claim 19, wherein the first volume identification information and virtual port identification information [[for]] <u>of</u> the virtualization system are [[both]] used to identify the virtual [[logical]] volume.

24.   (currently amended) A method of controlling data transfer [[in]] by a virtualization system [[including]] coupled to a host system <u>and a plurality of storage devices,</u> ~~which uses first volume identification information to access~~ <u>wherein the host system accesses</u> a virtual [[logical]] volume of the virtualization system, ~~and a plurality of storage devices,~~

~~which~~ <u>wherein</u> each <u>of said storage devices</u> has a plurality of disk drives and a logical volume related to a portion of the disk drives, the method comprising:

receiving a first request with a first volume identification information, which is used to identify the virtual [[logical]] volume, from the host system;

sending, <u>based on the receiving the first request,</u> a second request with a second volume identification information, which is used to identify a first logical volume [[in]] <u>of</u> a first storage device of the storage devices ~~and relates to the first volume identification information of the first request~~, to the first logical volume by using <u>first</u> relationship <u>information</u> between the first volume identification information and the second volume identification information;

receiving data [[corresponding to]] <u>requested by</u> the second request from the first storage device;

sending the received data to the host system;

<u>transferring data from the first logical volume to a second logical volume of a second storage device of the storage devices;</u>

<u>writing data sent from the host system during the data transfer from the first logical volume to the second logical volume, to the second logical volume; and</u>

<u>using, for sending data targeted to the virtual volume, second relationship information between the first volume identification information and third volume identification information, which is used to identify the second logical volume, if the data transfer from the first logical volume to the second logical volume is completed,</u>

~~after transferring data stored in the first logical volume to a second logical volume in a second storage device of the storage devices,~~ receiving a third request with the first volume identification information from the host system <u>after the data transfer from the first logical volume to a second logical volume is completed</u>;

sending, <u>based on the receiving the third request,</u> a fourth request with a third volume identification information, which is used to identify the second logical volume ~~and relates to the first volume identification information of the first request~~, to the second logical volume by using [[new]] <u>the second</u> relationship <u>information</u> ~~between the first volume identification information and the third volume identification information~~;

receiving another data [[corresponding to]] <u>requested by</u> the fourth request

from the second storage device; and

sending the received another data to the host system.

25.   (currently amended) The method of controlling data transfer as recited

in Claim 24, wherein the step of [[transferring]] <u>the</u> data <u>transfer</u> [[stored in]] <u>from</u> the first

logical volume to the second logical volume comprises:

receiving from a managing unit a command of <u>the second relationship</u> ~~data~~

~~transfer from the first logical volume to the second logical volume;~~

~~sending an access request to the first logical volume based on receiving the~~

~~command with the second identification information;~~

~~receiving data corresponding to the access request from the first logical~~

~~volume;~~

~~sending the received data to the second logical volume;~~

storing the [[new]] <u>second</u> relationship information <u>based on the command.</u>

26.   (currently amended) The method of controlling data transfer as recited

in Claim 24, further comprising:

storing the [[new]] <u>second</u> relationship information ~~based on transferring data~~

~~stored in the first logical volume to the second logical volume.~~

27.   (currently amended) The virtualization system as recited in Claim 1,

wherein the [[first logical]] <u>virtual</u> volume corresponds to a [[first]] <u>virtual</u> port of the

virtualization system ~~first storage device, and the second logical volume corresponds to a~~

~~second port of the second storage device.~~

28.   (currently amended) The virtualization system as recited in Claim 1,

wherein the mapping information [[correlates]] <u>relates</u> first port identification

information [[of a first port]] of the virtualization system, used by the host system to access

the virtual logical volume, [[with]] <u>to</u> second port identification information for identifying a

second port of the first storage device, and

wherein, based on <u>that</u> the data stored in the first logical volume [[that]] are

transferred to the second logical volume, the processor [[correlates]] <u>relates</u> the first port

identification information [[with]] to a third port identification information for identifying a third port of the second storage device, and registers the third port identification information [[correlated with]] related to the first port identification information in the mapping information.

29.   (currently amended) The virtualization system as recited in Claim 10, wherein the [[first logical]] virtual volume corresponds to a [[first]] virtual port of the virtualization system first storage device, and the second logical volume corresponds to a second port of the second storage device.

30.   (currently amended) The virtualization system as recited in Claim 10,
wherein the relationship information is further [[correlated]] related first port identification information of [[a first port of]] the virtualization system, used by the host system to access the virtual [[logical]] volume, [[with]] to second port identification information for identifying a second port of the first storage device, and
wherein, if the data transfer phase is completed stored in the first logical volume are transferred to the second logical volume, the new relationship information is [[correlated]] related the first port identification information [[with]] to a third port identification information for identifying a third port of the second storage device.

31.   (currently amended) The method of controlling data transfer as recited in Claim 16, wherein the [[first logical]] virtual volume corresponds to a [[first]] virtual port of the virtualization system first storage device, and the second logical volume corresponds to a second port of the second storage device].

32.   (currently amended) The method of controlling data transfer as recited in Claim 16, further comprising:
[[correlating]] relating first port identification information of [[a first port of]] the virtualization system, used by the host system to access the virtual [[logical]] volume, [[with]] to second port identification information for identifying a second port of the first storage device, and
based upon transferring the all data stored in the first logical volume to the second logical volume, [[correlating]] relating the first port identification information [[with]]

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to a third port identification information for identifying a third port of the second storage device.

33.   (currently amended) The virtualization system as recited in Claim 1, wherein the first volume identification information is ~~includes a virtual port identification information and~~ a Logical Unit Number (LUN) [[identifying]] of the virtual [[logical]] volume and is related to a virtual port identification information of the virtual volume.

34.   (previously presented) The virtualization system as recited in Claim 1, further comprising:

the virtualization system including a switch having the first ports, the second port, the processor and the memory.

35.   (currently amended) The virtualization system as recited in Claim 1, further comprising:

a processing circuit configured to convert the first volume identification information, which is [[appended]] related to data received from the host system, into the third volume identification information according to the [[new]] changed mapping information and to send data [[appended]] related to the third volume identification information to the second storage device.

36.   (currently amended) The virtualization system as recited in Claim 1, further comprising:

a processing circuit configured to convert the first volume identification information, which is [[appended]] related to [[another]] data received from the host system, into the third volume identification information according to the [[new]] changed mapping information and to send data [[appended]] related to the third volume identification information to the second storage device

another processing circuit configured to convert fourth volume identification information, which is [[appended]] related to data received from the host system and is used to identify another virtual [[logical]] volume of the virtualization system, into fifth volume identification information for identifying a third logical volume in a third storage device of the storage devices according to mapping information between the fourth volume

identification information and the fifth volume identification information and to send data
[[appended]] related to the fifth volume identification information to the third storage device.

37.   (currently amended) The virtualization system as recited in Claim 10,
wherein the first volume identification information is ~~includes a virtual port identification~~
~~information and~~ a Logical Unit Number (LUN) [[identifying]] of the virtual [[logical]]
volume and is related to a virtual port identification information of the virtual volume.

38.   (currently amended) The virtualization system as recited in Claim 10,
further comprising:

the virtualization system including a switch having the first ports, the second
port and the first processor.

39.   (currently amended) The virtualization system as recited in Claim 10,
further comprising:

a second processor configured to convert fourth volume identification
information, which is [[added]] related to data received from the host system and is used to
identify another virtual [[logical]] volume of the virtualization system, into fifth volume
identification information for identifying a third logical volume in a third storage device of
the storage devices according to relationship information between the fourth volume
identification information and the fifth volume identification information and to send data
[[added]] related to the fifth volume identification information to the third storage device.

40.   (currently amended) The method of controlling data transfer as recited
in Claim 16, wherein the first volume identification information includes ~~a virtual port~~
~~identification information and~~ a Logical Unit Number (LUN) identifying the virtual
[[logical]] volume and is related to a virtual port identification information of the
virtualization system.

41.   (currently amended) The method of controlling data transfer as recited
in Claim 16, wherein:

the virtualization system is a switch system.

42.   (currently amended) The method of controlling data transfer as recited in Claim 16, wherein:

receiving, by [a first processing circuit in] the virtualization system, a first data input/output request, which is sent from the host system and is targeted to the virtual [[logical]] volume;

converting, by control of a [[the]] first processing circuit in the virtualization system, the first volume identification information [[included in]] related to the first data input/output request into the third volume identification information after relating the first volume identification information to the third volume identification information;

transferring, by control of the first processing circuit, the converted first data input/output request to the second logical volume after correlating the first volume identification information with the third volume identification information;

receiving, by a second processing circuit in the virtualization system, a second data input/output request, which is sent from the host system or another host system and is targeted to another virtual [[logical]] volume;

converting, by control of a [[the]] second processing circuit in the virtualization system, a fourth volume identification information, which is used to identify the another virtual [[logical]] volume and is [[included in]] related to the second data input/output request, into a fifth volume identification information for identifying a [[fourth]] third logical volume in a third storage device of the storage devices;

transferring, by control of the second processing circuit, the converted second data input/output request to the [[fourth]] third logical volume.

43.   (currently amended) The method as recited in Claim 19, wherein the first volume identification information is includes a virtual port identification information and a Logical Unit Number (LUN) [[identifying]] of the virtual logical volume and is related to a virtual port identification information of the virtual volume.

44.   (currently amended) The method as recited in Claim 19, wherein:
the virtualization system is a switch system.

45.   (currently amended) The method as recited in Claim 19, wherein:

receiving, by [a first processing circuit in] the virtualization system, a first data input/output request, which is sent from the host system and is targeted to the virtual [[logical]] volume;

changing, by <u>control of a</u> [[the]] first processing circuit <u>in the virtualization system</u>, the first volume identification information [[included in]] <u>of</u> the first data input/output request into the third volume identification information <u>after setting the relationship</u>;

transferring, by <u>control of</u> the first processing circuit, the changed first data input/output request to the second logical volume ~~after setting the first volume identification information and the third volume identification information~~;

receiving, by ~~a second processing circuit in~~ the virtualization system, a second data input/output request, which is sent from the host system or another host system and is targeted to another virtual [[logical]] volume;

changing, by <u>control of a</u> [[the]] second processing circuit <u>in the virtualization system</u>, a fourth volume identification information, which is used to identify the another virtual [[logical]] volume and is [[included in]] <u>related to</u> the second data input/output request, into a fifth volume identification information for identifying a [[fourth]] <u>third</u> logical volume in a third storage device;

transferring, by <u>control of</u> the second processing circuit, the changed second data input/output request to the [[fourth]] <u>third</u> logical volume.

46   (currently amended) The method of controlling data transfer as recited in Claim 24, wherein the first volume identification information ~~includes a virtual port identification information and~~ <u>is</u> a Logical Unit Number (LUN) [[identifying]] <u>of</u> the virtual [[logical]] volume <u>and is related to a virtual port identification information of the virtual volume</u>.

47.   (currently amended) The method as recited in Claim 24, wherein:
the virtualization system is a switch <u>system</u>.

48.   (currently amended) The method as recited in Claim 24, wherein:

receiving, by ~~a first processing circuit in~~ the virtualization system, a [[first data input/output]] fifth request, which is sent from the host system and is targeted to the virtual [[logical]] volume;

changing, by control of a [[the]] first processing circuit in the virtualization system, the first volume identification information [[included in]] related to the [[first data input/output]] fifth request into the third volume identification information based on the second relationship information so that a sixth request with the third volume identification information is created based on the fifth request;

transferring, by control of the first processing circuit, the [[changed data input/output]] sixth request to the second logical volume ~~based on the new relationship information~~;

receiving, by ~~a second processing circuit in~~ the virtualization system, a [[second data input/output]] seventh request, which is sent from the host system or another host system and is targeted to another virtual [[logical]] volume;

changing, by a [[the]] second processing circuit in the virtualization system, a fourth volume identification information, which is used to identify the another virtual [[logical]] volume and is [[included in]] related to the [[second data input/output]] seventh request, into a fifth volume identification information for identifying a [[fourth]] third logical volume in a third storage device so that an eighth request with the fifth volume identification information is created based on the seventh request;

transferring, by the second processing circuit, the ~~changed second data input/output~~ eighth request to the [[fourth]] third logical volume.